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Managerial Economics 6, 7-16

2009

Ekonomia Menedżerska
2009, nr 6, s. 7–16

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1. Introduction

Research and development activities are found to be an important contributor to firm's income and capital market value. As a result, the discussion around the opportunity to capitalize intangible assets has always been very vigorous in the accounting literature [5; 6; 9; 10; 13; 17; 18; 20; 22]. International Accounting Standards deal with accounting for intangible assets in IAS 38 which purpose is to prescribe the recognition and measurement criteria for intangible assets. According to the framework the objective of financial accounting is to provide financial information that is useful for decision making. To be useful, information must be relevant, understandable, reliable and comparable. The information is designated as *relevant* when it affects the economic decisions of users by helping them evaluate past, present or future events, as well as confirming or correcting their past evaluations (IFRS F.26). Information must be *understandable* to enable users, who have a reasonable knowledge of business and economic activities and accounting, and who study the information with reasonable diligence, to comprehend the real meaning of the information. Relevant information should not be excluded because it is too complex or

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difficult for certain users to understand (IFRS F.25). *Reliability* is given if the information is free from material error and bias and can be depended upon by users to represent faithfully that which it either purports to represent or could reasonably be expected to represent (IFRS F.31). In order to assess a company's performance the investors must be able to *compare* the financial statements of a company through time and to compare financial statements between firms, i.e. the investors need information which is consistent across firms and over time (IFRS F.39-41).

This paper investigates whether the capitalization of internally generated intangible assets under the rules of IAS 38 is consistent with the principles mentioned above. A short overview on the accounting rules of internally generated intangible assets of IAS 38 is given in chapter two. Chapter three considers whether these rules really meet the principles of decision usefulness. The paper concludes by recommending how the capitalization of internally generated intangible assets can be improved with regard to the decision usefulness.

2. Recognition and Measurement of internally generated intangible assets

2.1. Recognition

IAS 38.8 defines an intangible asset as an identifiable non-monetary asset without physical substance. This means, that in addition to the usual characteristics of an asset according to the framework an intangible must also be "non-monetary" "without physical substance" and "identifiable". Consequently in combination with the attributes of an asset the criteria of an intangible asset are:

1. *Non monetary*: Subject to IAS 38.8 monetary assets are money held and assets to be received in fixed or determinable amounts of money. All assets which do not meet this definition are to classify as intangible assets.
2. *Without physical substance*: Sometimes an intangible asset may be contained on or in a tangible item. According to the examples in IAS 38 the asset should be classified as an intangible asset if the intangible component is the most significant element.
3. *Identifiability*: This criterion demands, that the intangible can distinguish from goodwill arising from a business combination (IAS 38.11). That is the case when the asset arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or other rights (IAS 38.12 (a)). Identifiability can also be demonstrated by the fact that the asset is separable from rest of the business. Separability exists if the

enterprise could sell, transfer, license, rent or exchange the future economic benefit attributable to the intangible asset, either individually or together with a related contract, asset or liability (IAS 38.12 (a)).

4. *Control*: The provisions of IAS 38 require that the intangible asset is controlled by the firm. Control relates to an enterprise's capacity to benefit exclusively from the benefit (or certain of the benefits) embodied in the intangible asset. Control implies the power of both, to obtain future economic benefits flowing from the underlying resource and to restrict the access of others to those benefits.
5. *Future economic benefit*: The future economic benefit embodied in an asset is the potential to contribute to net cash inflow of an enterprise (F.53).This recognition criterion is also derived from the framework and entails that the expected future benefits to the company from controlling the asset must be probable.

An item may be recognized as an intangible asset when it meets the definition of an intangible asset mentioned above as well as corresponds to the following recognition criteria: To recognise an intangible asset, the enterprise must deem it probable that future economic benefits associated with that asset will flow to the enterprise, and it has a cost or value that can be measured reliably (IAS 38.21). If an intangible item does not meet any of the criteria for definition and recognition as an asset, the expenditure is recognised as an expense when incurred. Expenditure that was initially recognised as an expense is not included in the cost of an intangible asset at a later date (IAS 38.71).

It lies in the nature of internally generated intangible assets that they are more uncertain than separately acquired intangible assets. Firstly, problems arise in identifying whether there is an identifiable intangible asset which will generate a future economic benefit [7; 13; 22]. Secondly, it is more difficult to measure the cost or the value of these assets because there are usually no market prices available for internally generated intangible assets [3; 14].

As a result, the IASB defined rules for the recognition of internally generated intangible assets which are more demanding. In order to determine if an internally generated intangible asset qualifies for recognition, the IASB distinguishes research from development activity. Research is defined as original and planned investigations to gain new scientific or technical knowledge. The application of such knowledge to the plan or design of new products or processes is considered as development. IAS 38.54 requires research costs to be expensed as incurred because a firm can never demonstrate that expected future benefits from such outlays are probable.

In contrast to the research phase, the development stage is further advanced. At this more advanced stage of the innovation process, an enterprise might possibly identify an intangible asset and demonstrate its probable future economic benefits. If the enterprise fulfils the following six restrictive requirements, the standard allows recognition of an intangible asset during the development phase (IAS 38.57):

1. The technical feasibility of completing the intangible asset so that it will be available for use or sale;
2. its intention to complete the intangible asset and either use it or sell it;
3. its ability to use or sell the intangible asset;
4. the mechanism by which the intangible will generate probable future economic benefits;
5. the availability of adequate technical, financial and other resources to complete the development and to use or sell the intangible asset; and
6. the enterprise's ability to reliably measure the expenditure attributable to the intangible asset during its development.

The recognition criterion of *technical feasibility* is barely illustrated in the specifications of IAS 38 so that the enterprise has the opportunity to base decisions on whether or not a project is technically feasible on its subjective point of view. Because of its similarity the definition of technical feasibility generally follows the US-GAAP rules of accounting for the costs of software in SFAS 86 [2; 19]. Accordingly, a software program has established technical feasibility when a detailed program design or working model has been completed [15]. However, the following of SFAS 86 may substantiate the technical feasibility for software but it is not adequate for other intangible items. Furthermore, the recognition criterion of technical feasibility is only sufficient for traditional product or process development. For other intangible items (like brands) the question of technical feasibility is negligible [2; 6; 10; 21].

To meet the second criterion for recognition, the company has to *intend completing* the intangible asset for internal usage or external selling. Strictly speaking, this criterion results from the application of the framework and IAS 1. Because without an intention of production or commercialisation, there is no possibility to get an economic benefit of the development. The intention of completion is sufficiently proven if development is continued until the point of preparation of the annual financial statement. This is based on the argument that a businessman would never continue development if he did not intend to finish it [2; 6; 19].

The third criterion for capitalisation recognition is the *ability to internal use or external sale* which results from the basic economic principles. These economic principles imply that companies would not develop an intangible asset unless it was internally used or externally sold. This criterion is met, if legal or effective measure lead to presumption that the potential benefit is accessible [6]. More precisely, the evidence has to be given on the ability as well as on the intention of internal usage or external selling. The reason for this provision is that a completed intangible asset may intentionally not be used in order to prevent a decrease in value of existing inventory [19].

The fourth criterion requires a *verification, in which terms the asset is likely to yield benefits*. Whereas an increase of benefits has to be proven for internally generated intangible assets, for derivative acquired intangible assets it is sufficient to expect benefits. Therefore, the requirements for the capitalization of internally generated intangible assets are more restrictive [8]. Following IAS 38.60 this proof has to be documented according to IAS 36. In case of selling intangible assets or products which were produced with the aid of intangible assets, the existence of a related market has to be based on market research. In case of internal use the intangible assets´ potential benefit depends on the technical and economic consistence and is therefore mainly determined by the criterion of feasibility. In case of an internal use future economic benefits have to be based on the estimation of the net present value of payment flows [2; 21].

The criterion of possessing *adequate technical, financial and other resources for completion and the subsequent utilization* can be met – according to IAS 38.61 – by presenting a business plan showing the needed resources and the companies´ ability to mobilize these resources. Regarding the availability of debt capital a letter of intent from the lender is accepted as a qualified proof [14].

The last criterion for capitalization recognition requires a *reliable valuation* of all expenditures connected to the developed intangible asset. This is when an appropriately equipped costing system is able to reliably determine the cost of production.

2.2. Measurement

When the recognition criteria are satisfied, intangible assets are initially measured at cost (IAS 38.24). The standard states, that after recognition, intangible assets may be measured using either the cost model or the revaluation model (IAS 38.72). After initial recognition, the cost model suggests that intangible assets should be carried at cost less any amortisation and impairment losses [22]. If the revaluation model is selected, intangible assets shall be carried at its fair value less any subsequent accumulated amortisation and impairment losses; fair values are to be determined by reference to an active market (IAS 38.75). In this respect, an active market is one in which the items traded are homogeneous, willing buyers and sellers can be found at any time, and prices are available to the public (IAS 38.8). Such active markets are expected to be uncommon for intangible assets [3; 14; 20]. Therefore, in most instances, the revaluation model would not be a realistically usable model. Nevertheless, if fair value information can be obtained from active markets, and the enterprise opts for the revaluation model, it will be essential to perform revaluations on a regular basis, such that the carrying amount does not differ materially from its fair value at balance sheet date.

3. Assessment of decision usefulness

3.1. Relevance

While the requirements of understandability appear uncontroversial, the requirements of relevance, reliability and comparability have to be more carefully examined.

As opposed to other accounting standards (like US-GAAP or HGB) the IFRS allow the capitalization of development costs, which is most welcome under the relevance aspect [1]. Development expenses have to be capitalized with regard to aforementioned premises. Consequently at first glance, financial statements according to IFRS should be able to give much more information about internally generated intangible assets than other financial statements (like US-GAAP or HGB). However, the capitalization rules for development costs as provided in IAS 38 are prudence-driven. The underlying reason being that financial accounting shall emphasise the aspect of information reliability [9]. The trade-off between relevance and reliability causes that only a small amount of development cost can be capitalized if the requirements are too restrictively interpreted [20]. For example, the technical feasibility of completing an asset cannot be verified until the final stage of a development process. The same is true for the evidence that all resources are available, which are necessary to finish the development [6].

Furthermore, the codified prohibition of reinstatement that is mentioned in IAS 38.71 is unsatisfying with regard to the aspect of relevance because only a relatively small part of the development expenditures can be considered for capitalization [19]. If the asset fulfils the capitalization criteria for the first time its value in the balance sheet will be too low, because only parts of the whole development costs may be capitalized. The users of financial statements will not be informed about the real value of the asset and will not be able to appraise it by themselves. So the balance sheet value is meaningless [5]. Due to the fact that there are explicit capitalization prohibitions for certain internally generated intangible assets (such as research costs), the contingent of internally generated intangible assets which are allowed to be capitalized is manageable. Finally, there are not many more internally generated intangible assets capitalizable according to IFRS in comparison to other accounting standards which do not allow the capitalization of internally generated intangible assets [19].

3.2. Reliability

Financial statements information have to be reviewable which means that third parties must be able to verify if the information are true and in accordance with actuality. Scopes of discretions and options to capitalize lower the objectivity of financial statements. The capitalisation of expenditures for intangible assets requires that costs are assigned solely to the development phase. Therefore, the differentiation between costs for research and those for development is the first step in order to determine the expenditures to be capitalized. If the company cannot distinguish the research phase from the development phase, the scope of discretion is limited: the expenditure is treated as if it only were incurred in the research phase. Of course, a statement that an explicit distinction cannot be made is an area of discretion in itself [12]. This remaining scope of discretion can be indirectly limited by additional documentation containing reasons why a project is already in the development phase [10].

Furthermore, the additional recognition criteria in IAS 38.57 which should guarantee objectivity can be influenced by the balancing enterprise, because IAS 38 does not determine how the evidence on the fulfilled capitalization criteria has to be provided. Pursuant to the principles of objectivity evidence provided by a third party (for example in the form of an expert testimony) would be favourable. External references enhance the verifiability. It would be consequent, if these requirements were also part of the capitalization rules of development cost [2; 5]. But even if an enterprise is able to demonstrate all definition and recognition criteria, eventually it will be the company's choice whether or not it externalizes them, i.e. the obligation to capitalize de facto turns into an option to capitalize internally generated intangible assets [3; 12].

After recognition the standard allows for intangible assets to be carried at their fair value. However, the fair value is not estimated as a reliable valuation rate. IAS 38 claims that the fair value shall be determined by reference to an active market. The distortion of prices by speculative effects could, however, interfere with reliability [5; 6; 10]. Basically, perfect markets must be a precondition for a definite fair value. Only in this case the existence of a unique market price, which includes all valuation relevant information, is warranted. Imperfect markets show a difference between the purchase price and the retail price [4]. If the intangible asset will only be used for internal purposes, the reference to a market price is inappropriate and leads to a pretended objectivity [5; 6].

The principle of reliability also postulates that the information about the internally generated intangible assets is complete. Thus, a financial statement should inform about all intangible items of an enterprise. Of course, it is not possible to specify all intangible assets in the balance sheet because some items do not meet the definition criteria of an (intangible) asset and other items are prohibited to be capitalized (for example the IAS 38.15 disallows the capitalization of customer lists or market shares). In these cases the principles of completeness would be met doubtless if IAS 38 requires information about these non-capitalizable items in the notes [20]. But IAS 38 does not demand information about these items, and thus IAS 38 does not adhere strictly to the principles of completeness either [5; 10].

3.3. Comparability

Comparability is only warranted, if every enterprise interprets the capitalization criteria in the same way. Due to the fact that there are no rules, how an enterprise shall demonstrate the additional recognition criteria for internally generated intangible assets, it is inevitable that companies proceed in different ways and therefore no comparable information is delivered [5; 6; 10; 12].

With regard to comparability, the choice between benchmark treatment and allowed alternative treatment is problematic. These valuation rates are derived from fundamentally different origins and are therefore not suitable for comparisons of the accounts' content. Increasingly drastic is the development of the discrepancy in valuation over time as asset prices continually increase [2; 10]. Within the scope of benchmark treatment, deductions of depreciations are made and thus the valuation rate decreases. As opposed to this, with the allowed alternative treatment the continuous revaluation leads to an increasing valuation rate [5; 20].

4. Recommendations

Reliability and comparability could be improved if the rules of IAS 38 would determine how an enterprise shall demonstrate that an internally generated intangible asset will generate probable future economic benefits. Pursuant to reliability evidence provided by a third party would be favourable. At least the standard should commit enterprises to state in the notes, why and how the capitalized internally generated intangible asset meets the recognition criteria [20]. This would enable users of financial statements to assess whether an enterprise is conservative or liberal in the capitalization of its internally generated intangible assets [11].

Relevance could be improved if IAS 38 would allow the reinstatement of previously expensed costs [6; 11; 16]. When an enterprise starts research and development activities the future economic benefits of these activities are usually very uncertain, and if an internally generated intangible resource does not meet the criteria at this early stage its cost should be expensed when incurred. But if the enterprise is able to demonstrate the future economic benefits in a subsequent period, the previously expensed cost should be capitalized and amortized over its remaining life [16].

Given the fact that intangibles resources are difficult to verify, and that the management of an enterprise could use them to manage or manipulate reported earnings, stringent rules for reinstatement of previously expensed costs are required. *Høegh-Krohn* and *Knivsflå* [11] suggest, that an enterprise should initially disclose in its notes when research and development activities were started and that a possible intangible asset might be created in a subsequent periods, but at this early stage the uncertainty of the future economic benefits prohibits capitalization. By doing this the enterprise does not only brief the users of financial statements but also creates an off-balance sheet portfolio of potential intangible assets [20]. The reinstatement of previously expensed costs should be only allowed if a potential intangible asset was disclosed in advance and was added to the portfolio of potential assets. This would disallow enterprises to arbitrarily capitalize previously expensed costs [11].

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